CAPABILITY MATURITY MODEL
IMPLEMENTATION APPROACH

Section I – Report Summary

OBJECTIVE

On January 4, 2001 the CIO organization submitted a SDLC/CMM Business Case to the IRB for approval. The Business Case outlines a need for the development and implementation of repeatable software development processes aligned with the SEI Capability Maturity Model for Software. Before approving the business case, the Investment Review Board requested that the SDLC/CMM Business Case team contact SFA system owners and their operating partners to solicit their recommendations, concerns and support for implementing the SDLC and CMM. Over the last week the SDLC/CMM Business Case team

- ❑ Prepared an overview of the CMM Implementation
- ❑ Conducted two group feedback sessions.
- ❑ Conducted three one-on-one feedback sessions

This is a report of the team's findings. Section I contains the Report Summary and Section II contains the Detailed Feedback. Based upon the information contained herein both the SFA system owners and Operating Partners support moving forward with the SDLC/CMM Business Case.

WHO WE TALKED TO

The SDLC/CMM Business Case team obtained feedback from SFA system owners and operating partners for both modernization and legacy projects.   The following sessions were held.

- **Joint SFA and Operating Partner meeting** - held the morning of January 9, 2001. Several contractors and SFA contacts participated in person and via conference call.
- **IT Enterprise Support Group** - The afternoon of the same day, the SDLC and CMM discussions continued as an agenda item on the weekly IT ESG meeting. This meeting consisted of the majority of SFA system owners.
- **One-on-one sessions** - conducted with system owners and operating partners who were unable to attend either meeting.

Below is a table of the list of system owners and operating partners that attended each forum.

SFA SYSTEM OWNERS AND CONTACTS		
NAME	**ORGANIZATION**	**SYSTEMS/IPT(S)**
Anna Allen	FPC/PSL	FFEL
Bob Jamroz	OCIO/eCAD	
Calvin A. Whitaker	FPC	FFEL
Charlie Coleman	OCIO/Innovations	
Connie Davis	OCIO/eCAD	
David Moore	OCIO/IT Serv	
Denise Hill	CIO/IT Management	
Denise Leifeste	Students	LC
Harry Feely	OCIO/Staff	
Helene Epstein	CIO	
Jane Holman	Schools/Title IV Delivery	
Jeanne Saunders	Students/Apps	FOTW, CPS
Karen Sefton	Schools	PELL
Keith Wilson	CIO/IT Services	TIVWAN
Mary Haldane	Schools	COD
Rana O'Brien	School Channel	PEPS
Randy Bowman	Students	Servicing
Paul Hill	OCIO/eCAD	
Paul Stonner	CFO	FMS
Rosemary Beavers	Schools	DLOS
Sandra Fowler	OCIO/EITS	NSLDS
Steve Hawald	CIO	
Steve Wingard	Schools	DLOS
Tom Pestka	CIO/Business Services	
Tony Magin	FP/FM	FFEL
Wayne Wright	OCIO/EITM	

OPERATING PARTNER CONTACTS		
NAME	**ORGANIZATION**	**SYSTEMS/IPT(S)**
Chuck Ray	ACS	SERVICING/PELL
Jack Banks	Raytheon	FFEL
Jeff Sheetz	NCS	CPS/FOTW/TIVWAN
John Terrell	Raytheon	NSLDS
Kriss Ethridge	Raytheon	FFEL
Laurie Miesen	CBMI	PEPS
Rich Lineback	NCS	CPS/FOTW/TIVWAN
Ron Langkamp	Mod Partner	
Yateesh Katyal	Mod Partner	
Vernon Grammer	EDS	DLOS/ERM
Bill McGovern	EDS	DLOS/ERM
Becky Wilkerson	EDS	DLOS/ERM

•**26 SFA contacts representing, 11 SFA Systems.**

•**SFA contacts from Students, Schools, Financial Partners, CFO, and CIO organizations.**

•**12 operating partners, representing 6 companies and 10 SFA Systems**

Attachment (1) is the presentation that was given at each meeting to introduce the topic and create dialog.

SUMMARY OF FINDINGS

Operating Partners

All of the Operating Partners are supportive of SFA's SDLC and CMM initiative and expressed interest in participating. Many of the Partners are implementing CMM initiatives themselves in support of SFA systems and other corporate projects. The table below identifies where some Partners are in their CMM initiatives.

ACS	NCS	Raytheon	Mod Partner	EDS
Assessed at CMM Level 2	Assessed at CMM Level 2	Operating at CMM Level 2. Pockets at CMM Level 5	Government Market Unit (which supports SFA) operating at CMM Level 2	Assessed at CMM Level 2. Operating at CMM Level 3. Assessment for Level 3 in Spring 2001.
Moving to CMM Level 3	Moving to CMM Level 3	Will be assessed at CMM level 2 and 3 together.	Moving to CMM Level 3	Assessment for CMM Level 4 by end 2001

Overall the operating partners welcome this SFA initiative. All of the partners agree that SFA needs standard processes that will leverage and integrate with their existing processes through defined entry and exit points into the department. Many stated that repeatable processes would lower the level of risk for the delivery of products. The Operating Partners want to work with SFA to clearly define the scope and requirements of a project. They also support the implementation of a change control process to manage scope and changes throughout the project effort.

They believe that "this dialog up front was very healthy versus prescriptive". They also shared that if SFA requires contractors to have CMM compliant processes then it will be easier for them to sustain executive level support for their own CMM initiatives.

Each operating partner offered to provide processes, lessons learned, participate on the SEPG, and review processes in development. They offered valuable advice and critical success factors that are documented in detail in Section II. In summary, they fully support this initiative, appreciated the opportunity to comment, and look forward to hearing from and working with us in the near future.

SFA System Owners and Contacts

The SFA system owners or their points of contact initially had the following concern and question. The concern focused on the ability of this initiative to succeed. In the past, SFA has embarked on other SDLC (i.e. Method/1) and CMM initiatives. Method /1, purchased as a proprietary tool, was never fully deployed at SFA. The CMM initiative was placed on hold once the Modernization program was launched. Is this just another short-term effort?

> *In response, the current SDLC is not a proprietary tool; it consists of life cycle processes that are developed for and owned by the SFA. We are leveraging all of the prior work that supports this initiative. This SDLC/CMM effort will establish a continuous process improvement program that will be supported by a dedicated team consisting of SFA personnel from various projects, the Modernization Partner and System Operating Partners (i.e. Software Engineering Process Group (SEPG)). An SEPG has never existed at SFA before. It is considered a crucial part of any SDLC/CMM initiative. But to ensure our success, we are looking to create an SEPG with the right resources, the right focus and the right outcomes for SFA.*

The primary question that the system owners had was "If we currently have processes in place, how will we benefit from this initiative?"

> *Many of the processes currently in place are based upon the Software CMM that we are proposing to use. We are looking to standardize existing processes and use the CMM model to ensure compatibility across projects. The standard SFA SDLC and CMM processes will be created at a high enough level that they do not*

dictate changes to existing processes. Existing projects will benefit, because the new standard processes will:

1. *provide a clarification of SFA roles;*
2. *provide consistent formats for every project to communicate to SFA management and to each other; and*
3. *provide a model for continuous process improvement.*

The largest beneficiaries will be the projects and organizations that currently do not have clearly defined repeatable processes in place. These projects will have a standard to start with, that takes the mystery out of Software Development.

Once the concern and question were addressed, the SFA system owners and contacts provided valuable suggestions for ensuring success. They all agreed that this initiative is needed and the SFA as a whole will benefit. Again, the key to success will be in the approach that is taken to create an understanding of the SDLC and CMM processes.

IPT leaders cited a need for these processes now. The FAFSA Redesign IPT consists of a legacy system contractor currently operating at CMM Level 2 and a Modernization Partner developer that has no standard repeatable process. As a result, communication across the project has been difficult and expectations are not always met. In this case, the SFA project manager, comfortable with operating at CMM Level 2, has to resort to heroic tactics to ensure success of the project. The Modernization Partner contractor and project manager could have benefited from the use of an SDLC and repeatable processes already consistent with CMM Level 2.

Like the operating partners, the SFA system owners and contacts were pleased to provide their input and agreed to support the effort. A few did caution us though, that on some occasions they might not have a lot of time for heavy involvement. System owners wanted some latitude in rollout and the pace of changes, based on project needs. An operating partner summed it up with this metaphor:

Think of the project managers as firemen that have just arrived to put out a raging fire and the CMM initiative is a person that approaches the firemen on the scene to have a discussion on fire prevention. Like fire prevention, CMM is an important initiative, but the right approach and timing is everything.
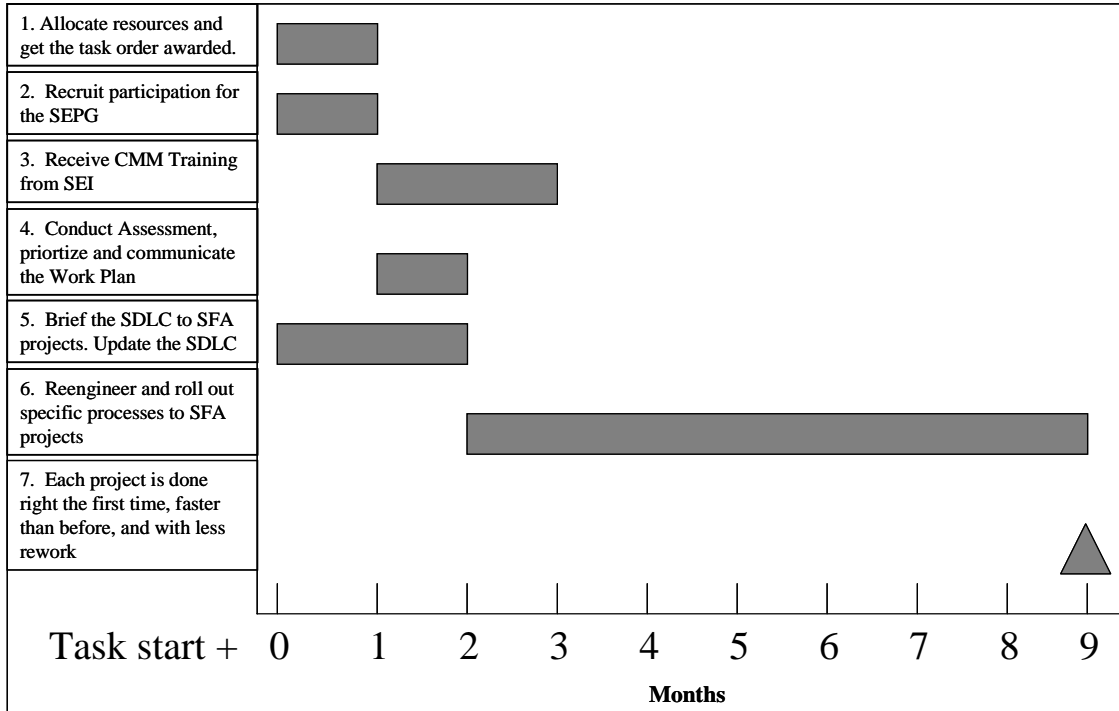
Lessons Learned

❑ All of the Operating Partners are familiar with the SEI Capability Maturity Model and had clear ideas on implementation. There is limited experience and knowledge of CMM among the SFA contacts. Communication and training were determined to be

key success factors to the success of the initiative within SFA, especially for the executives, managers and project leads.

- ❑ Both the operating partners and SFA contacts raised the concern that since they are satisfied with their current processes, the SDLC and CMM initiatives should not dictate changes to those processes. They did agree that the processes should be developed in a way that existing processes integrate with the standard SFA processes. Since the SFA and operating partners will all align to the goals of the CMM model with the same assessment criteria, key process areas across projects should be compatible.

- ❑ There was more excitement among the operating partners for the SFA initiative than expected. There was eagerness on their part to participate on the SEPG. Although some looked at this as an opportunity to get CMM work, most were genuine in voluntarily providing access to their documented processes and lessons learned.

- ❑ A continual theme centered on leveraging existing processes to create the SFA processes and placing the people who are currently doing the work on the SEPG. The operating partners are eager to share their lessons learned so that we don't repeat the same mistakes they encountered.

- ❑ Using the SFA SEPG as assessors on contractor assessment teams is a great idea. This is not an oversight role but a supportive role that encourages knowledge transfer. In reverse, using experienced assessors from the operating partner community on an SFA assessment team is also vital to getting feedback from people who are already familiar with our environment.

- ❑ Other roles that should participate in the SDLC and CMM initiative include the system COTRs and the Procurement and Acquisition organizations. Without their support in defining and implementing these processes, they may never be communicated and agreed upon in future contracts or task orders.

- ❑ Both the SFA contacts and Operating Partners like the approach of having a dialog up front before creating processes versus creating the processes and prescribing them to each project. They want to participate on the SEPG and/or continue to be involved by performing quality reviews of processes are finalized.

SDLC/CMM HIGH LEVEL PLAN

1. Allocate resources and get the task order awarded.	
2. Recruit participation for the SEPG	
3. Receive CMM Training from SEI	
4. Conduct Assessment, priortize and communicate the Work Plan	
5. Brief the SDLC to SFA projects. Update the SDLC	
6. Reengineer and roll out specific processes to SFA projects	
7. Each project is done right the first time, faster than before, and with less rework	

Task start + 0   1   2   3   4   5   6   7   8   9

Months

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Section II – Detailed Feedback

Operating Partners

The following feedback was provided from the Operating Partners

1. SFA processes are welcomed. Too much time is spent spinning wheels as a result of miscommunication on projects.
2. The repeatable processes should be used to simplify the way we work.
3. CIO assistance is needed to work with business units to help life cycle processes flow better.
4. Executives want a common way to understand the required inputs and outputs for development (i.e. Requirements and Acceptance Criteria).
5. Get agreement on processes first before deploying.
6. Requirement Management and Configuration Management should be accomplished first. Requirement Management is the number one priority.
7. SFA needs an overall understanding of CMM in order to embrace it.
8. A communication plan needs to get out right away for implementing this SDLC and CMM initiative.
9. Get everyone on the floors of SFA to understand that this is not just a CIO initiative. If SFA accomplishes this, they will have accomplished 95% of the CMM challenge.
10. Schedule follow-up session with the COTRs for the SFA systems. The COTRs along with other groups (e.g. procurement/acquisitions), that we normally don't think about, need to be engaged.
11. Must have the rank and file on board or the initiative will die.
12. If we combine the experiences of all of the SFA operating partners then SFA can get a lot of lessons learned.
13. Operating partners are currently using Caliber, PVCS Tracker, and Webload tools
14. Processes should be tool independent.
15. The SFA needs to establish an absolute time frame for certification. Otherwise, the establishment and deployment of repeatable processes will linger on and on and never get accomplished. Note: The Airforce created an energized contractor community by requiring that all contractors be level 3.
16. The first step is to educate the top-level management; "they need to understand it." You will need their agreement and buy in.
17. Ensure that the SDLC and processes do not add levels of bureaucracy.
18. Be sure to coordinate with all affected parties to get them on board.
19. Define your goals and timeline. Without an absolute timeframe, do not waste your money.
20. Along with the SEPG, a Management Steering Committee will also needed.
21. Each Operating partner is very interested in participating on the SEPG.

22. NCS suggested that the SFA SEPG participate on the assessment teams of operating partners. This will help the SFA SEPG with becoming lead assessors faster and gain a deeper understanding of partner processes. The NCS assessment will occur this spring or summer and NCS offered to have an SFA member participate in their assessment.
23. Documentation should be at a high enough level to incorporate existing processes.
24. The IPT is part of the CMM umbrella.
25. Differentiate what is primarily an IPT, delivery and operational lines.
26. Partners are looking for major and minor roles to be identified.
27. If the SFA is looking for contractor support for writing processes, EDS is interested.
28. SEPG membership should represent the people doing the job.
29. Take what works today and make it into a standard process that works.
30. Operating partners want to participate in SFA CMM assessments and process reviews.
31. Define entry and exit points for processes into the department.
32. Develop a charter for the SEPG to identify core and associate members.
33. The SEPG should have the authority to form working groups for each process.
34. This initiative will aid contractors in moving their process improvement initiatives along much easier.
35. Using the CMM we will have a common process and move in the same direction.
36. Operating partners are concerned about getting requirements on time at the point they are needed.
37. The SFA CMM initiative will aid contractors in moving their CMM corporate projects along.
38. Everyone embraces it!
39. Will volunteer for the SEPG!

SFA System Owners and POCs

System owners and/or their points of contact provided the following detailed feedback:

1. Having standards is a worthy goal.
2. We need to get the organization to understand how to keep pace with change.
3. Having and SDLC and CMM process in place will help reduce risk premiums for the Modernization Partner efforts.
4. We should ensure that this does not turn out to be just another CMM effort that does not succeed.
5. There is value in having a framework for moving forward.
6. The FMS project is already looking at hiring a dedicated resource for CMM implementation. This person would be dedicated to implementing CMM processes for FMS & working with the CIO organization.
7. It is important to get managers the information needed to understand the CMM.
8. FAFSA Redesign IPT does not have processes in place. This CMM initiative is needed now. The IPT is using a new company. It has taken awhile for the contractors and SFA to understand each other. The development contractor does not have SDLC

processes or a methodology. They did not meet the project manager's expectations by delivering a 3-page project work plan. Walk-throughs have not been applied and the team has lost a lot of time.

9. Change management procedures are needed.
10. SDLC and CMM training is needed.
11. Projects need to conduct Periodic Process Reviews
12. The Government needs to be able to compete successfully.
13. We need to be able to answer the question, "Did we deliver the *mail* to our customers?"
14. We need the ability to coordinate across project schedules.
15. Modernization is not about transition but organizational change management.
16. Need to have a cross linkage with the rest of SFA projects in order to determine dependencies and keep up with continual changes to COTS packages.
17. Having repeatable processes will allow us to better understand the development environment we are working in.
18. The SDLC should discuss deploying customized software as well as COTs
19. Coordination between projects is needed to know the status of project schedules.
20. We need to be able to document how we modernized. We need a storybook for how we did it for GAO, congress, etc.
21. The SDLC should apply to the modernization partner and their subcontractors.
22. Need to ensure that modernization partner uses the SDLC and CMM processes.
23. Document the best of all worlds.
24. Consider other CMMs such as Software Acquisition, People CMM and CMMI. In many cases SFA does not produce software**.**
25. Standardize process across the organization.
26. The Software Development process has to be clear.
27. Clearly Define Expectations.
28. Try to involve of all areas in SFA in the initiative. (i.e. Procurement)
29. Periodic reviews of all project processes are needed.
30. Need to find the best way to implement the SDLC and CMM.
31. Keep in mind that some system owners will not have a lot of time to be heavily involved.
32. SFA System Owners have enough to deal with in their current environment.
33. Good luck going forward.
34. The initiative should ensure that the projects would not incur additional cost for implementing CMM. The cost should be built in.
35. We will obtain big benefits if "We" SFA Are In Control.
36. We need to be able to provide an audit trail of project decisions.
37. Processes are needed to transition from development into operations
38. The SFA SDLC should not override the ED CIO SDLC guidance. We should be aligned with the Department's effort.
39. Provide a sample SEPG charter, with the report, to gain a better understanding of what an SEPG is supposed to accomplish. *(Attachment (3) is a sample SEPG Charter used by EDS for the LO project.)*

40. Initially, Legacy Systems may not get ROI immediately out of this effort. We don't see the need to change the legacy processes. But, as we move forward, the standard guidance can be used to provide specific information to the statement of work.